REPLY TO DR. L. B. HOLTHUIS ON THE NAMES OF WHITE SHRIMP

by

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(As an explanation to the reader it should be stated that my paper was submitted to Doctor Holthuis for Crustaceana. He asked me to withdraw it and I did so saying that I would publish it elsewhere. He then asked me to publish his remarks along with it, to which I agreed, and they are given above. However, his interpretations and ideas in this instance are contrary to the International Code of Zoological Nomenclature. Therefore, I have prepared the following rebuttal.)

Doctor Holthuis' remarks can be answered in the same way that they are stated, in generalities and in specific detail. His expressed devotion to nomenclatural stability is no less than my own and we differ only in the approach to the attainment of stability. In fact, Doctor Holthuis' aims would be better served if he would apply the Rules regarding generic names of penaeid shrimp (Gunter, 1957) and not set up *Penaeus,* erroneously, as the root word for all genera (Holthuis, 1959).

We are now only in the second hundred years since the establishment of zoological taxonomy and yet many zoologists, including taxonomists, are impatient to have stability of nomenclature attained within their lifetime, which is clearly impossible if for no other reason than the fact that there are too few specialists, and many groups go for years without being worked on. Zoologists will do well to have things fairly stable within the third century of formal systematics.

In Doctor Holthuis' remarks there is the implication that things have stood as they are for many, many years and thus should not now be disturbed. This is incorrect. When I started work on shrimp thirty-two years ago, there were only two species of *Penaeus* recognized on the whole eastern coast of the Western Hemisphere. Today, five species are recognized and there has been a vast overturn in usage, due to the works of Burkenroad, some of which lead to dismay among the older carcinologists. The case in question here is only twenty-six years old, and it stems from the time Burkenroad described the South American white shrimp as new. The period is short in terms of zoological nomenclature.

Doctor Holthuis has stated that Burkenroad's designation of the Matanzas, Florida specimen as the neotype of the *Penaeus setiferus* is valid. Yet he wishes to establish Seba's figure as the lectotype. This is unnecessary, if not contradictory. If the neotype is valid, a lectotype is not needed. Additionally, his lectotype designation is invalid for three reasons. First, it is contrary to the "Recommendation" that lectotype selection shall have as its object the definition of the species. The two species in question are well defined, and Seba's figure will not help "define" the species. Such a lectotype would not serve his purpose anyway since he cannot show it derived from North America. It is invalid for the same reason. As I have shown above and additionally below, the documented evidence indicates that Seba's specimen was South American.

Doctor Holthuis' learned discussion of Seba's figure is correct of course, but it is not pertinent to the case, except to indicate that the figure would be a singularly unfortunate lectotype for the purpose of "clarifying" the species. The Code clearly states that a zoologist designating a lectotype should publish "at least" the data listed under Recommendation 73C, listed under 10 categories, only 8 of which apply to a non-fossil marine species. Doctor Holthuis can supply none of these except that the specimen was, presumably, adult. For this reason, too, his lectotype is very poor and probably is invalid. It would be best to let that matter lie and retain Linnaeus' name by common assent, as has been done.

Seba's figure has been accepted as the original of *Cancer setiferus* by general accord of earlier workers and the same general accord indicates that it was South American. There is little to be gained now by designating this figure, known to be erroneous in some ways, as the lectotype. In fact, Doctor Holthuis' aim is to set up a northern locality for this lectotype, and that cannot be done without going in the face of all evidence.

Doctor Holthuis' inclusion of lower Florida in the Indies involves an idea so old that it has been forgotten. But even so, his argument is invalid due to the known distribution of the white shrimp. These do not exist in the Keys nor on the West Florida coast along the shores of the peninsula. They are present only in very small and scattered concentrations as far south as the St. Lucie inlet, on the east coast, where I have taken them in recent years (Gunter, 1959). This is south of the previously known southernmost Florida records at Cape Canaveral, which is north of 28° N., the northern Florida limit for the Indies. It should be pointed out that Matanzas Inlet is in north Florida, within 50 miles of the Georgia line, much farther north of 28° N. It is hardly possible that Seba obtained white shrimp from the southern part of Florida, because the area does not lie within the range of either species.

In suggesting that Seba's specimen may have come from some other part of the South Atlantic coast of the present United States, Doctor Holthuis has overlooked a matter of American history. The American Colonies were required to trade with the mother country, and mostly, if not altogether, in ships of British registry. Such ships did not generally travel from the American Colonies to the Dutch ports. These trade restrictions were the basis for one of the complaints that led to the American Revolution a few years later. Except for very rare strays, white shrimp do not extend north of Cape Hatteras, North Carolina, and Seba's Virginia connections would hardly have yielded him any white shrimp. The Virginia, New Jersey and New York records of white shrimp are comparable to the rare examples of tropical marine fishes sometimes reported from southern Canadian waters. The whole idea of North American origin of Seba's specimen is far-fetched and highly improbable.

The Rules, or Code as they are now called, were devised to bring about order and justice in the naming of species by biologists and their application must be determined on these grounds. If it were left to laymen, the whole system of Latin specific names would probably be abolished. Therefore, I am making no attempt to answer Doctor Holthuis' remarks on that score because their bearing on the question is indirect at best.

Doctor Holthuis has avoided completely the question of the rights of Thomas Say in this matter and the related one concerning what obligations later workers have to him in this connection.

Burkenroad's designation of the neotype of *Penaeus setiferus* is invalid for four reasons. The neotype was not selected to resolve a complex zoological circumstance. The distinction of the two species of American white shrimp has never been questioned. The differences are clear and their distribution is disjunctive. No zoological questions are involved, only taxonomic ones. The neotype is further invalid because there is considerable positive evidence, and none to the contrary, that it is outside of the range of the species traditionally referred to as *Penaeus setiferus*. Furthermore, the only "exceptional circumstance" was Burkenroad's somewhat lame defense of *Penaeus setiferus* as the name of the North American white shrimp after erroneously giving the South American species a new name, which error he recognized apparently sometime between 1936 and 1939 (see literature cited above). Therefore he did not designate the neotype at the time he "revised" the species, which must be done, according to the Code. The Code indicates clearly that neotypes are not necessary for either one of the two species under discussion and would be quite difficult, if not impossible, to validate before the Commission. This would do grave injustice to Thomas Say.

Gmelin (1790), Olivier (1811), H. Milne Edwards (1837), de Saussure, *auct.* (1858), Heller (1865), Bate (1881), and Rathbun (1897 and 1900) all used *setiferus* as the specific name for the South American white shrimp. If we were to doubt all earlier writers and their clear designations of South America for other species of organisms, taxonomy would be thrown into a terrible state of confusion. The statements of the workers on the name and distribution of *P. setiferus* are positive evidence, and there is no positive evidence to the contrary. Doctor Holthuis refers pejoratively to the few older records of white shrimp as sporadic, but the fact that there have been few workers with the Crustacea does not justify

ignoring the work that was done. When Rathbun (1896) gave a new name to the common blue crab of the western Atlantic she cited all previous scientific literature and came up with only four previous references.

The men closest to Linnaeus in time, and who possibly had information which we do not know about, referred to the South American white shrimp as *setiferus,* and these are the only positive references in the literature.

The older workers knew how to write and say North America, but nobody had ever mentioned a North American white shrimp (or a penaeid) until Thomas Say described the species, and his description and name is valid. Attempts to avoid this simple and straightforward conclusion serve no good purpose taxonomically or otherwise. Such usage is in the interest of correct and stable zoological nomenclature. According to the Code, the proper name of the South American white shrimp is *Penaeus setiferus* (Linnaeus) and the proper name of the North American white shrimp is *Penaeus fluviatilis* Say.

ADDITIONAL REFERENCES

Gunter, G. 1957. Misuse of generic names of shrimp (family Penaeidae). Systematic Zoology, **6**(2): 98-100.

Gunter, G. 1959. Biological investigations of St. Lucie Estuary in connection with Lake Okeechobee discharges through St. Lucie Canal. A report to the District Engineer, Jacksonville [Florida] District, Corps of Engineers. 75 pp. and 23 pls. (Processed).

Holthuis, L. B. 1959. The Crustacea Decapoda of Suriname (Dutch Guiana). Zoologische Verhandelingen (Rijksmuseum van Natuurlijke Histoire te Leiden). No. 44: 1-296, 16 pls.

Rathbun, M. J. 1896. The genus Callinectes. Proceedings of the United States National Museum. **17**: 349-375, 16 pls.